Biochemical Development Engineers

What They Do

Biochemical Development Engineers develop and execute the scalable processes, instruments, and tools needed to generate a manufactured product, from the design stage to end-stage manufacturing. They design new manufacturing facilities and equipment and troubleshoot problems related to production equipment and systems. Biochemical Development Engineers use their knowledge of pilot plant, Current Good Manufacturing Practices (cGMP) standards, and bioprocess development environments to conduct research to develop new and improved chemical manufacturing processes.

Biochemical Development Engineers are responsible for recommending ways to cut production costs, while producing a quality product. They perform laboratory studies of steps in the manufacture of new products and troubleshoot proposed processes in small-scale pilot operations. They direct scale-up transfer of processes developed by scientists to manufacturing production processes resulting in a commercial product. These engineers may write research findings for scientific journals.

*Biochemical Development Engineers in the biotech industry share characteristics of Chemical Engineers. Detailed descriptions of these occupations may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important skills, knowledge, and abilities include:

- Chemistry – Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
- Engineering and Technology – Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to the design and production of various goods and services.
- Physics – Knowledge and production of physical principles, laws, their interrelationships, and application to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and subatomic structures and processes.
- Science – Using scientific rules and methods to solve problems.
- Operations Analysis – Analyzing needs and product requirements to create a design.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.

Training/Requirements

- Bachelor or master's degree in chemical or biochemical engineering or related discipline.
- Up to two years of experience in pharmaceutical processes or research product development.

Employment Development Department
State of California
LMID
Labor Market Information Division
"Your Information Source"

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What's the California Job Outlook?

While the Bureau of Labor Statistics does not collect data on Biochemical Development Engineers, the occupation listed below is found in the biotechnology industry and has similar duties. The California outlook and wage figures are drawn from all industries and represent occupations comparable to Biochemical Engineers.

Standard Occupational Classification	Estimated Number of Workers 2002	Estimated Number of Workers 2012	Average Annual Openings	2005 Wage Range (per hour)
Chemical Engineers				
17-2041	2,300	2,600	100	$33.92 to $56.57

These figures do not include self-employment.

***Average annual openings** include new jobs plus openings due to separations.*

Source: www.labormarketinfo.edd.ca.gov, Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.

Additional Sources of Information

American Institute of Chemical Engineers (AIChE)
(212) 591-7338
www.aiche.org

Northern California Section of AIChE
www.aiche-norcal.org

National Center for Manufacturing Sciences (NCMS)
(734) 995-0300
www.ncms.org

Occupational Information Network (O*NET)
http://online.onetcenter.org

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